IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	)	Attorney Docket No.: **ICB0198**
	)	
Joachim GRUPP et al	)	Confirmation No.: 5568
	)	
Serial No.: 10/518,495	)	Group Art Unit: 2871
	)	
Filed: December 20, 2004	)	Examiner: Lucy P. CHIEN
	)	
For: DISPLAY CELL, IN PARTICULAR LIQUID CRYSTAL CELL, OR PHOTOVOLTAIC CELL COMPRISING MEANS FOR CONNECTION TO AN ELECTRONIC CONTROL CIRCUIT	)	Date: April 15, 2010

APPEAL BRIEF

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Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

Applicants respectfully submit this Appeal Brief under 37 C.F.R. § 1.191 with respect to the above-captioned application. The present Appeal Brief addresses and responds to all outstanding issues set forth in the Final Office Action mailed July 17, 2009.

Real Party in Interest

The real party of interest is ASULAB, S.A., of Marin, Switzerland.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1-13 have been canceled without prejudice. Claims 30 and 32 have been withdrawn because they pertain to non-elected subject matter. Claims 14-29, 31 and 33-40 stand rejected and are appealed. A copy of the appealed claims is provided in Appendix A attached herewith.

Status of Amendments

Amendment (G), filed April 30, 2009, has been entered by the Examiner per the Final Office Action mailed July 17, 2009.

Summary of the Claimed Subject Matter

The present invention pertains generally to an electro-optical display cell, and to a multi-layered liquid crystal display cell, such as may be used as a display device for an electronic device. An advantage provided by the display cell embodiments of the present invention is that these devices include conductive paths that are reliably formed and that exhibit good electrical conductivity even in places where they match the back edge of the cell.

Thus, an electro-optical display cell, in accordance with the present invention, includes (a) at least one transparent front substrate whose top surface forms a front face of the cell; (b) at least one back substrate that may also be transparent or not, whose lower surface forms a back face of said cell; (c) a sealing frame joining the front and back substrates and defining a volume for retaining an electro-optically or photo-electrically active medium in a

sealed manner, wherein the front and back substrates include on faces opposite each other at least one electrode each, these electrodes being connectable by conductive paths of the cell to an electrical power or control circuit and the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones, wherein the conductive paths are each formed of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over the back surface of the cell; and (d) a contact member arranged over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path, wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part, and the first separate component part and the second separate component part are disposed so that each contacts the contact member.

In addition, a multi-layered liquid crystal display cell in accordance with the present invention includes four superposed substrates joined in pairs by sealing frames which each define a sealed cavity for retaining liquid crystals; a first sealing frame joining the first and second substrates, while a second sealing frame joins the second and third substrates and a third sealing frame joins the third and fourth substrates, said substrates including on faces opposite each other at least one electrode each, said electrodes being connectable by conductive paths to an electric control circuit and the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones, wherein the conductive paths are each made up of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over a back surface of the cell; and a contact member arranged on an edge, or on back, or on the edge and

on the back, of the cell thereby forming an electric junction disposed between the first separate component part and the second separate component part of each conductive path, wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part, and the first separate component part and the second separate component part are disposed so that each contacts the contact member.

In particular, the embodiment of independent claim 14 pertains to an electro-optical display cell that includes (a) at least one transparent front substrate whose top surface forms a front face of the cell (for example, at 3, lines 21-24, of Applicants' original specification); (b) at least one back substrate that may also be transparent or not, whose lower surface forms a back face of said cell (for example, at 3, lines 25-26, of Applicants' original specification); and (c) a sealing frame joining the front and back substrates and defining a volume for retaining an electro-optically or photo-electrically active medium in a sealed manner (for example, see Figures 3, 5, 6 and 7, and at 3, lines 27-29, and at 7, lines 1-5, of Applicants' original specification). Independent claim 14 further recites that the front and back substrates include on faces opposite each other at least one electrode each, wherein these electrodes are connectable by conductive paths of the cell to an electrical power or control circuit and the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones (for example, see Figures 5, 6 and 7, and at 3, lines 30-33, of Applicants' original specification). Independent claim 14 also recites that the conductive paths are each formed of a first separate component part (See, e.g., Figure 5, element (34a)) in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part (See, e.g., Figure 5, element (34b)) extending over the back surface of the cell (for example, see Figure 5, elements (34a) and (34b) corresponding to the first separate component part and the second

separate component part, respectively, and at 3, lines 31-35, of Applicants' original specification).

Independent claim 14 further recites that the electro-optical display cell also includes (d) a contact member arranged over an edge, or back, or the edge and the back, of the cell (See, e.g., Applicants' original Figures 5, 6, 7, 9, 10, 11 and 12), thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path (See, e.g., at 3, line 35, to 4, line 2, of Applicants' original specification), wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part (See, e.g., at 7, lines 28-30, of Applicants' original specification; and Applicants' original Figures 5, 6 and 7), and the first separate component part and the second separate component part are disposed so that each contacts the contact member (See, e.g., Applicants' original Figures 5, 6, 7, 9, 10, 11 and 12). The contact member is an important feature of the present invention because it provides a reliable electric junction between the first separate component part and the second separate component part that is simple to manufacture and also resistant to degradation by mechanical forces.

Claim 15 depends upon claim 14, and additionally recites that the contact member takes the form of discrete conductive bumps (See, e.g., at 4, line 3, of Applicants' specification as originally filed).

Claim 16 depends upon claim 15, and additionally recites that the first separate component part of each conductive path comes into lateral contact with the conductive bumps, whereas the second separate component part of each conductive path can extend as far as the top of the bumps and cover the bumps in whole or in part (See, e.g., original claim 3; Applicants' original specification, at 7, line 31, to 8, line 4; and original Figure 5).

Claim 17 depends upon claim 15, and additionally recites that the second separate component part of each conductive path extends at least partially underneath the conductive bumps (See, e.g., original claim 4; Applicants' original specification, at 8, lines 5-6; and original Figure 6).

Claim 18 depends upon claim 14, and additionally recites that the contact member takes the form of a tape of anisotropic conductive material (See, e.g., original claim 5; Applicants' original specification, at 8, lines 22-26; and original Figure 13).

Claim 19 depends upon claim 14, and additionally recites that the cell includes a stack of (n) individual cells, wherein each of the individual cells is defined by two substrates belonging thereto (See, e.g., original claim 6; Applicants' original specification, at 4, lines 9-12).

Claim 20 depends upon claim 14, and additionally recites that the cell includes (n+1) superposed substrates, wherein these (n+1) substrates are joined in pairs by a sealing frame (See, e.g., original claim 7; and Applicants' original specification, at 4, lines 9-14).

The embodiment of independent claim 21 pertains to a multi-layered liquid crystal display cell that includes (a) four superposed substrates joined in pairs by sealing frames which each define a sealed cavity for retaining liquid crystals; (b) a first sealing frame joining the first and second substrates, while a second sealing frame joins the second and third substrates and a third sealing frame joins the third and fourth substrates, said substrates including on faces opposite each other at least one electrode each, said electrodes being connectable by conductive paths to an electric control circuit and the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones (See, e.g., Applicants' original specification, at 3, lines 30-33, and at 4, lines 15-22; and original Figures 5, 6 and 7). Independent claim 21 additionally recites that the conductive paths are each made up of a

first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over a back surface of the cell (for example, see Figure 5, elements (34a) and (34b) corresponding to the first separate component part and the second separate component part, respectively, and at 3, lines 31-35, of Applicants' original specification).

Independent claim 21 further recites that a contact member is arranged on an edge, or on back, or on the edge and on the back, of the cell thereby forming an electric junction disposed between the first separate component part and the second separate component part of each conductive path (See, e.g., at 3, line 35, to 4, line 2, of Applicants' original specification), wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part (See, e.g., at 7, lines 28-30, of Applicants' original specification; and Applicants' original Figures 5, 6 and 7), and the first separate component part and the second separate component part are disposed so that each contacts the contact member (See, e.g., Applicants' original Figures 5, 6, 7, 9, 10, 11 and 12). The contact member is, again, an important feature of the present invention as discussed above because it provides a reliable electric junction between the first separate component part and the second separate component part that is simple to manufacture and also resistant to degradation by mechanical forces.

Claims 22 and 23 depend respectively upon claims 14 and 21, and each additionally recites that a power circuit or the control circuit is mounted on the back of the cell (See, e.g., Applicants' original specification, at 8, lines 26-30; and original Figure 9).

Claims 24 and 25 depend respectively upon claims 14 and 21, and each additionally recites that the circuit is mounted directly on the back of the cell (See, e.g., Applicants' original specification, at 8, lines 26-27; and original Figure 9).

Claims 26 and 27 depend respectively upon claims 22 and 23, and each additionally recites that the circuit is mounted on the back of the cell via a printed circuit board or a flexible conductive film (See, e.g., Applicants' original specification, at 9, lines 1-7).

Claims 28 and 29 depend respectively upon claims 14 and 21, and each additionally recites that a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell (See, e.g., Applicants' original specification, at 9, lines 11-21, and original Figure 13).

Claim 31 depends upon claim 14, and additionally recites that the cell is a liquid crystal cell (See, e.g., Applicants' original specification, at 9, lines 1-3).

Claim 33 and 34 depend respectively upon claims 14 and 21, and additionally recite that the contact member is disposed on an exterior surface of the cell (See, e.g., Applicants' original Figures 5, 6 and 7).

Claims 35 and 36 depend respectively upon claims 14 and 21, and additionally recite that the back substrate is disposed between the contact member and the front substrate of the cell (See, e.g., original Figures 5, 6 and 7).

Claims 37 and 38 depend respectively upon claims 14 and 21, and additionally recite that the contact member is disposed on a side of the cell (See, e.g., original Figure 7).

Claims 39 and 40 depend respectively upon claims 14 and 21, and additionally recite that the contact member has a first thickness and the first separate component part has a second thickness and the second separate component part has a third thickness, wherein the first thickness is thicker than the second thickness and the first thickness is thicker than the third thickness (See, e.g., original Figures 5, 6 and 7).

Grounds of Rejection to be Reviewed on Appeal

The grounds for rejection presented for review by the Board of Patent Appeals and Interferences (hereinafter, the "Board") include the rejection of claims 14-20, 31, 33, 35, 37 and 39 under 35 U.S.C. § 102(b) as allegedly anticipated by Kawakami et al. (U.S. Patent Application Publication No. 2002/0008805, hereinafter the "Kawakami Publication").

Additional grounds for rejection presented for review include the following rejections under 35 U.S.C. § 103(a):

(i) claims 21, 23, 25, 34, 36, 38 and 40 rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Kawakami Publication in view of Mandai et al. (U.S. Patent Application Publication No. 2001/0015788, hereinafter the "Mandai Publication");

(ii) claim 22, 24 and 26 rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Kawakami Publication in view of Kuroki et al. (U.S. Patent Application Publication No. 2002/0051102, hereinafter the "Kuroki Publication");

(iii) claim 27 rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Kawakami Publication and the Mandai Publication in view of the Kuroki Publication;

(iv) claim 28 rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Kawakami Publication in view of Wada (U.S. Patent Application Publication No. 2002/0019069, hereinafter the "Wada Publication"); and

(v) claim 29 rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the Kawakami Publication and the Mandai Publication in view of the Wada Publication.

Applicants' Arguments

1. A Prima Facie Case of Anticipation Under 35 U.S.C. § 102 Has Not Been Established Because Numerous Limitations in Claims 14-20, 31, 33, 35, 37 and 39 Have Been Ignored or Misconstrued.

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claims. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Board should conclude that the Examiner has failed to establish a prima facie case of anticipation against claims 14-20, 31, 33, 35, 37 and 39 because the Kawakami Publication fails to teach each and every limitation as arranged as in the claims.

A. The Kawakami Publication

The Kawakami Publication discloses a "liquid crystal device and electronic device," as shown in Figures 1 and 2, which are reproduced below. The Kawakami Publication discloses a liquid crystal (1) that includes a pair of substrates (7a) and (7b), which hold a liquid crystal (L) therebetween, a light guide (4) provided opposite to one of the substrates, a FPC (3a) connected to one of the substrates (7a) and (7b), and a LED (21) provided opposite to a light receiving surface (4a) of the light guide (4). The LED (21), according to the Kawakami Publication, is mounted on the FPC (3a) and arranged opposite to the light receiving surface (4a) of the light guide (4), and the LED (21) is preferably positioned relative to the light guide (4) by engagement between the pines provided on the LED (21) and the recesses (31) provided on the light guide (4).

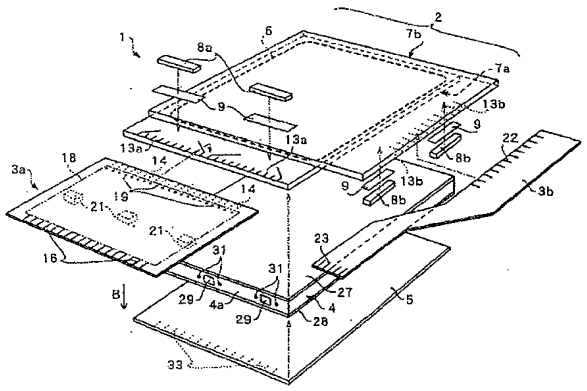


Figure 1

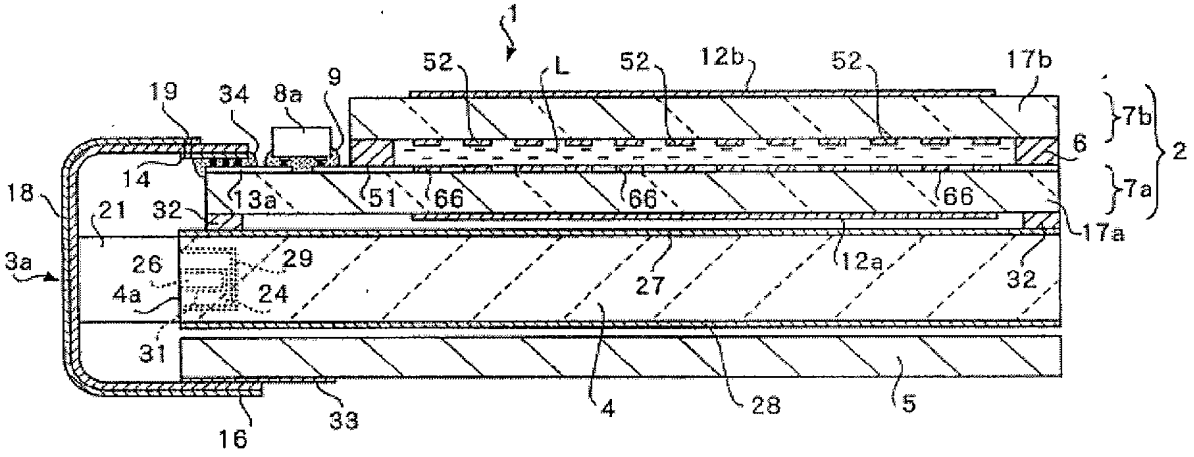


Figure 2

As evident from Figures 1 and 2 of the Kawakami Publication, a conductive adhesive element ACF (34) is provided **on the upper surface** of back element substrate (17a), and not on the lower surface of the back element substrate (17a), (Kawakami Publication, ¶¶ [0080], [0086]). Therefore, the Kawakami Publication does not teach, or even suggest, (i) "a contact member arranged over an edge, or **the edge and back face**, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path" as recited by independent claims 14 and 21.

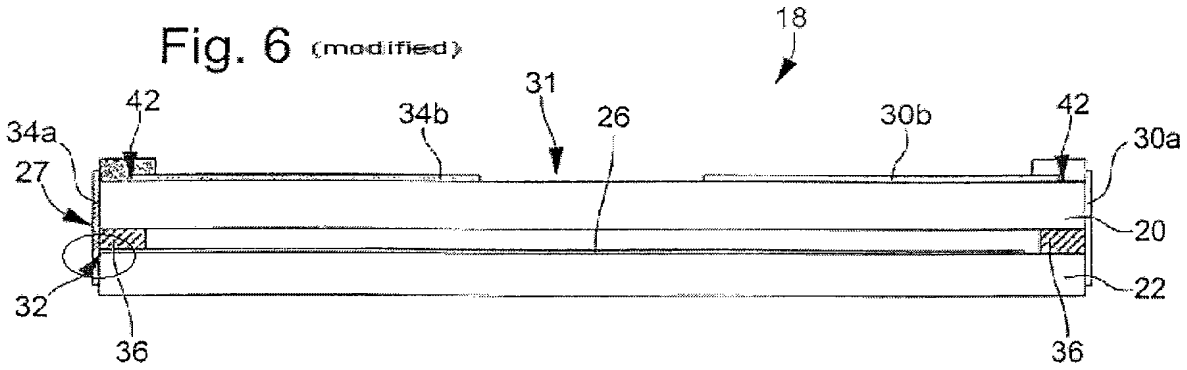
As would be instantly realized by a person of ordinary skill in the art, the "back face" of the cell, in accordance with the present invention, is formed by the lower surface of the back substrate as shown in Figures 5 to 7 of Applicants' disclosure as originally filed. Thus,

the Kawakami Publication also does not teach, or suggest, (ii) "at least one back substrate ...whose lower surface forms a **back face** of said cell" as recited by independent claim 14 and (iii) "wherein a lower surface of the back substrate forms a **back face** of said cell" as recited by independent claim 21.

i. The Kawakami Publication Does Not Teach a Lateral Electric Contact Zone as Claimed

According to the presently claimed invention, a "lateral electric contact zone" is defined as the location where the electrode extends up to the lateral edges of the front and back substrates, and is where the first separate component contacts the electrode. Specifically, Applicants' original specification, at 6, lines 3-6, states that "the electrodes of cell 1 are flush with the edge 15 of cell 1 at distinct locations on its perimeter to define thereon lateral electric contact zones" (emphasis added). To facilitate an easy understanding of this definition, a "lateral electric contact zone" is identified in, for example, the modified version of original Figure 6 as shown below.

Fig. 6 (modified)



Thus, the "lateral electric contact zone" designated by character reference "32" in original Figure 6, for example, pertains to that lateral region, as indicated by the circle in modified Fig. 6, wherein an electrode (i.e., component (26) in original Figure 6) is flush with a lateral edge of the cell (18) on the lateral perimeter of the cell (18), (i.e., in Fig. 6, the

electrode (36) is shown as flush with the edge on the left-hand side of the cell and is, therefore, level or even with both an edge surface of the front substrate and an edge surface of the back substrate). As shown in Figures 5, 6, 7, 9, 10 and 12 of Applicants' disclosure, the "lateral electric contact zones" are all located on sides of the cell. Therefore, in accordance with Applicants' original disclosure, the Board should conclude that a side is different from a "front face" and a "back face" of the cell, and that the "lateral electric contact zones" are associated with the side of the cell and not the front and back faces of the cell.

Thus, a "lateral electric contact zone" according to the claimed invention is a "lateral...zone" located on a side of the cell. **The Kawakami Publication does not disclose any such "lateral electric contact zones" defined by the alleged electrodes (51, 66)**. As shown in Figure 2 of the Kawakami Publication, the alleged electrodes (51, 66) are clearly located on the face of the substrate (17a) and, therefore, cannot define any sort of "lateral electric contact zone" as claimed.

Independent claims 14 and 21 each recite, (iv)

> "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones,
> wherein the conductive paths are each formed of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over the back surface of the cell."

The Kawakami Publication does not teach, or suggest, these limitations of Applicants' claimed invention.

In particular, the Examiner contends that

> "the electrodes [(51,66,51)] are flush (adjacent to, the electrodes (51, 13a) are shown to be at the edge of the substrates (17a) with an edge of the front substrate and with an edge of the back substrate respectively, and define lateral electric contact zones."
> (Office Action, mailed July 17, 2009, at 2, line 18, to 3, line 2).

The Examiner's contention is incorrect because, as shown in Figure 2 of the Kawakami Publication, the alleged electrodes (51,66,51) are not "even or level with an edge surface of the front substrate **and** with an edge surface of the back substrate" as recited by claims 14 and 21. The Examiner asserts that the alleged electrodes (51,66,51) are "flush" (i.e., adjacent to) with electrodes (51, 13a) and "at" the edge of the substrates (17a). This is not the same structure as recited by claims 14 and 21.

Returning again to Applicants' original Figure 6, for example, the electrode (26) is level and even with the left lateral edge of substrate (22) and is level and even with the left lateral edge of substrate (20). The Kawakami Publication does not teach, or suggest, any structure even remotely similar to the structure recited by claims 14 and 21. In addition, the Examiner's contention that there are electrodes "adjacent to" and "at" an edge of the substrates (17a), wherein these electrodes allegedly read on the claimed invention, is plainly incorrect for the following reasons.

First, a person of ordinary skill in the art would immediately realize that the limitation wherein "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate," as recited by claims 14 and 21 (See, e.g., original Figures 5, 6, 7, 9, 10, 11 and 12 of the above-captioned application), is not the same as electrodes that are merely adjacent to, or at, an edge of the two substrates (See, e.g., Figures 3 and 4A of the Mandai Publication; and Figure 2 of the Kawakami Publication). Second, Applicants explicitly amended claims 14 and 21 to limit the invention to structure wherein the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate and not merely adjacent to edge surfaces of both the front substrate and the back substrate (See Amendment (F), filed April 6, 2009, at 21, lines 1-10).

Third, the electrodes according to claims 14 and 21 have to be even or level with an edge surface of both the front substrate and the back substrate. The Examiner contends that,

according to Figure 2 of the Kawakami Publication, component (17a) is a "back substrate," component (17b) is a "front substrate," and components (13a), (51), (66) are "electrodes" (Office Action, dated July 17, 2009, at 2, line 15, to 3, line 9). Assuming *arguendo* that the Examiner's interpretation is correct (which is not a valid assumption), the Board should conclude that, according to Figure 2 of the Kawakami Publication, the "electrodes" (13a), (51), (66) are not even or level with both an edge surface of the "substrate" (17a) and an edge surface of the "substrate" (17b).

For all of the above reasons, the Board should conclude that the Kawakami Publication fails to teach, or suggest, "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones" as recited by claims 14 and 21.

In Amendment (F), of record and with respect to the Mandai Publication (U.S. Patent Application Publication No. 2001/0015788), Applicants argued that

> "while the previous term 'flush' may mean 'immediately adjacent' (See, e.g., RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 513 (1991)), claims 14 and 21 presently recite that 'the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate respectively,' which is not the same thing as 'immediately adjacent.' Therefore, it is moot whether the electrodes (12), (14) disclosed by Mandai Publication are immediately adjacent with the edge of the substrates (8), (10) because the claimed invention requires that the electrodes be 'even or level with' an edge surface of the front substrate and the back substrate. As would be immediately realized by a person of ordinary skill in the art, the electrodes (12), (14) disclosed by the Mandai Publication are not 'even or level with' an edge surface of the substrates (8), (10)."
>
> (Amendment (F), at 21, lines 1-10, of record, emphasis in the original).

The Examiner implicitly conceded that the Mandai Publication does not teach, or suggest, that "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate" as claimed when the Examiner withdrew the previous rejection of independent claim 21 based on the Mandai Publication under 35 U.S.C. § 102(e).

The same argument applies to the device disclosed by the Kawakami Publication. Whether "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate" as claimed is not the same thing as whether the electrodes are adjacent to an edge of the front substrate and to an edge of the back substrate. Therefore, it is moot whether the alleged electrodes (51, 66, 51) disclosed by the Kawakami Publication are adjacent to an edge of the substrates (17a), (17b) because the claimed invention requires that the electrodes be "even or level with" an edge surface of the front substrate and an edge surface of the back substrate. **As would be immediately realized by a person of ordinary skill in the art, the alleged "electrodes" (51, 66, 51) disclosed by Figure 2 of the Kawakami Publication are not "even or level with" an edge surface of both substrates (17a), (17b)**.

It is a well-established proposition that the United States Patent and Trademark Office (USPTO) must give a fair reading of a reference as a whole. In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). For all of the above reasons, the Board should conclude, once the Kawakami Publication is given a fair reading regarding what it teaches as a whole, that the Kawakami Publication does not teach, or suggest, "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones" as recited by independent claims 14 and 21.

ii. The Kawakami Publication Does Not Teach a First Separate Component and a Second Separate Component as Claimed

The Examiner erroneously contends that the plurality of terminals (13a) disclosed by Kawakami correspond to Applicants' claimed "first separate component," and that the flexible printed circuit (3a) corresponds to Applicants' claimed "second separate component"

(Office Action, dated July 17, 2009, at 3, lines 2-7). The plurality of terminals (13a) shown in Figure 1 of the Kawakami Publication, however, extend on the upper surface of the base (17a) up to the edge of the base (17a), (See Kawakami Publication, ¶¶ [0066] and [0086]). Thus, the terminals (13a) do not come in contact with the scanning lines (51), i.e., an alleged electrode, at the level of a "lateral electric contact zone" because, as shown in Figures 1 and 2, the electrode (51) extends on the upper surface of the substrate (17a) and is not located at the lateral edge of the substrate (17a).

The Examiner has not clearly identified what region in the device disclosed by the Kawakami Publication she contends satisfies the limitation directed to the "lateral electric contact zones." **Applicants respectfully challenge the Examiner to show exactly what structure she contends is disclosed by the Kawakami Publication and corresponds to a "lateral electric contact zone" as claimed**.

The present invention, on the other hand, requires that the "first separate component part" is "in contact with the electrodes at the level of the lateral electric contact zones" as recited by claims 14 and 21. As shown in Figure 2 of the Kawakami Publication, the terminals (13a) are not in contact with the electrodes (51,66) at the level of any "lateral electric contact zone" because the terminals (13a) and electrodes (51, 66) are not, in fact, in contact with each other at all. As shown in Figure 2 of the Kawakami Publication, liquid crystal driving IC's (8a) and an anisotropic conductive film (9) separate the terminals (13a) and electrodes (51, 66), (Kawakami Publication, ¶ [0051] and Figure 2).

According to the Kawakami Publication, the terminals (13a), which the Examiner contends are a "first separate component," are connected to the electrode (51) by an Anisotropic Conductive Film, ACF, (9) shown as a bump in Figure 2 (Kawakami Publication, ¶ [0051]). The Kawakami Publication discloses that the terminals (13a) are connected to terminals (14) and, via through holes (19), to wiring pattern (18), which a person of ordinary

skill in the art would instantly realize constitute a second separate component part (Kawakami Publication, Figures 1 and 2, and ¶ [0091]). Thus, the Kawakami Publication discloses that the terminals (13a) are connected to the terminals (14), through holes (19), and wiring pattern (18), by ACF (34), (Kawakami Publication, ¶ [0086]). The electrode (51) of Kawakami's cell is, therefore, connected to the alleged "first separate component part" (13a) by the ACF (9), and the alleged "first separate component part" (13a) is also connected to a second separate component part (14, 19, 18) by a second contact member (34). Consequently, a person of ordinary skill in the art would instantly realize that the cell disclosed by Kawakami requires multiple components to connect the terminals (13a) to the through holes (19) according to the Examiner's interpretation of Kawakami (Office Action, dated July 17, 2009, at 3, lines 2-11), whereas the present invention employs only a single "contact member... forming an electric junction disposed between the first separate component part and the second separate component part of each conductive path" as recited by independent claims 14 and 21.

Assuming *arguendo* that Kawakami's terminals (13a) constitute the "first separate component part," and flexible printed circuit (3a) constitutes the "second component part," and that ACF (34) is a "contact member" arranged so that "the first separate component part and the second separate component part are disposed so that each contacts the contact member" (which is not a valid assumption), the Kawakami Publication still fails to teach, or suggest, "the conductive paths are each formed of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones" as recited by claims 14 and 21. As discussed above, any alleged "contact zone" disclosed by the Kawakami Publication is not a "lateral electric contact zone" because the alleged contact zone is located on the face of the substrates and not on a lateral "edge surface" of both substrates (17a) and (17b).

For all of the above reasons, **the Board should conclude that the Kawakami Publication fails to teach, or suggest, "a first separate component part in contact with the electrodes at the level of the lateral electric contact zones" as recited by claims 14 and 21**.

In view of the above facts, the Board should conclude that the Kawakami Publication fails to anticipate, or render obvious, the subject matter of claims 14-29 and 31-40 of the above-captioned application.

2. A Prima Facie Case of Obviousness Under 35 U.S.C. § 103 Has Not Been Established Because Numerous Limitations in Claims 14-29, 31 and 33-40 Have Been Ignored or Misconstrued.

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation, or other reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Board should conclude that the Examiner has failed to establish a prima facie case of obviousness against the claims 14-29, 31 and 33-40 because neither the Kawakami Publication, the Mandai Publication, the Kuroki Publication, nor the Wada Publication, either alone or in combination, teach or suggest each and every claimed limitation arranged as in the claims.

A. The Kawakami Publication

The disclosure of the Kawakami Publication is discussed above. As admitted by the Examiner (Office Action, dated July 17, 2009, at 5, lines 16-17; at 7, lines 5-6 and lines 18-

19; and at 8, lines 11-13, and at 9, lines 6-8), the Kawakami Publication does not teach, or suggest, (i) "four superposed substrates joined in pairs by sealing frames which each define a sealed cavity for retaining liquid crystals" as recited by independent claim 21, (ii) "a power circuit or the control circuit is mounted on the back of the cell" as recited by claims 22, 24, 26 and 27; and (iii) "a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell" as recited by claims 29 and 30.

B. <u>The Mandai Publication</u>

The Mandai Publication discloses a "displaying system for displaying information on a display," which pertains to a liquid crystal display that includes first and second substrates (8), (10) wherein the first substrate (8) has a surface supporting thereon a plurality of parallel first electrodes (12) and the second substrate (10) has a first surface and second surface opposed to the first surface (See Abstract of the Mandai Publication, and Figures 1 and 2). The Mandai Publication discloses that the first surface supports thereon a plurality of parallel second electrodes (14), wherein the second substrate (10) is positioned so that the first surface opposes the surface of the first substrate to define a gap therebetween and the first and second electrodes cross with each other (See Abstract of the Mandai Publication, and Figure 2). The Mandai Publication further discloses that a memory type liquid crystal (18) is filled in the gap as shown in Figure 4B, and a plurality of first and second terminals are positioned on the second surface and electrically connected with the first and second electrodes, respectively, so that the first and second terminals are capable of being connected with an external device (See Abstract of the Mandai Publication and ¶ [0052]).

With reference to Figures 4B and 4C of the Mandai Publication, which are reproduced below, a person of ordinary skill in the art would instantly appreciate that the Mandai

Publication does not teach, or suggest, (i) a "contact member...forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path" as recited by independent claims 14 and 21. However, this is not the only deficiency in the disclosure of the Mandai Publication.

The Mandai Publication also does not teach, or even suggest, (ii) a "contact member arranged over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path" as recited by independent claims 14 and 21. Because the Mandai Publication does not teach, or suggest, any sort of "contact member"

Fig.4B

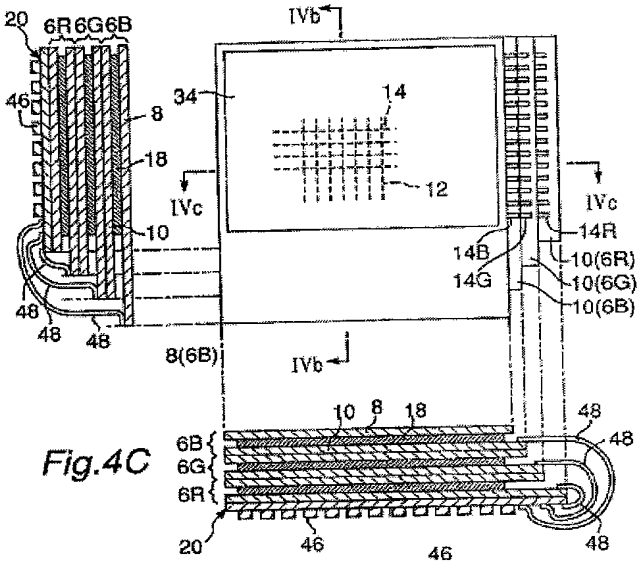


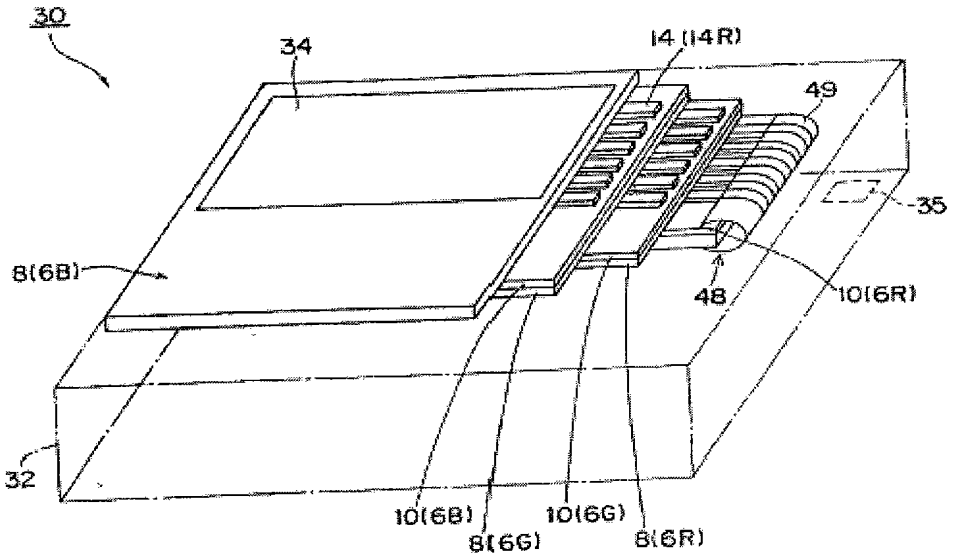
Fig.4A

Fig.4C

whatsoever, it also cannot teach, or suggest, (iii) "the electric junction provides direct conductive continuity between the first separate component part and the second separate component part" as recited by claims 14 and 21. In addition, the Mandai Publication does not teach, or suggest, (iv) "the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate respectively, and define lateral electric contact zones" as recited by claims 14 and 21.

As evident from Figure 3 (reproduced below) and Figure 4A (reproduced above) of the Mandai Publication, the electrodes (12), (14) are not even or level with an edge of the substrates (8) and (10). **The Examiner implicitly conceded this fact when the Examiner withdrew the previous Section 102(e) rejection based on the Mandai Publication**.

Fig. 3



The Mandai Publication also does not teach, or suggest, (v) "the contact means is disposed on an exterior surface of the cell" as recited by claims 33 and 34, (vi) "the back substrate is disposed between the contact means and the front substrate of the cell" as recited by claims 35 and 36, and (vii) "the contact means has a first thickness and the first separate component part and the second separate component part have a second thickness, wherein the first thickness is thicker than the second thickness" as recited by claims 39 and 40. As admitted by the Examiner (Office Action, dated November 15, 2008, at 8, lines 17-18; and at 10, lines 2-4), the Mandai Publication does not teach, or suggest, (viii) "a power circuit or the control circuit is mounted on the back of the cell" as recited by claim 27; and (ix) "a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell" as recited by claim 29.

For all of the above reasons, the Mandai Publication cannot anticipate, or render obvious, the subject matter of independent claims 14 and 21.

C. The Kuroki Publication

The Kuroki Publication discloses a "display device, manufacturing method thereof and image terminal unit employing the same," which includes a display device comprising a front frame having an annular picture frame and having a pair of side faces and a pair of end faces provided in outer circumferential sides of the picture frame, a mold frame sandwiched by the pair of side faces and the pair of end faces, and a display panel arranged between the front frame and the mold frame (See Abstract of the Kuroki Publication). The Kuroki Publication further discloses that stopper pieces are used for alignment of the display panel and are formed in the side faces and the end faces (See Abstract of the Kuroki Publication).

D. The Wada Publication

The Wada Publication discloses an "optical element and method of manufacturing the same, and electronic instrument," which includes a method of manufacturing an optical element including the steps of: (a) forming a through hole in a semiconductor element which has an optical section and an electrode electrically connected to the optical section; and (b) forming a conductive layer extending from a first surface of the semiconductor element on which the optical section is formed, through an inner wall surface of the through hole, to a second surface opposite to the first surface (See Abstract of the Wada Publication).

E. Summary of the Disclosures

The Kawakami Publication, the Mandai Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest, (i) a

"contact member arranged over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path" as recited by independent claims 14 and 21, and (ii)

> "the electrodes are even or level with an edge surface of [the/a] front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones,

as recited by claims 14 and 21, (iii)

> "wherein the conductive paths are each formed of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over the back surface of the cell,"

as recited by claim 14, and (iv)

> "the conductive paths are each made up of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over a back surface of the cell,"

as recited by claim 21.

For all of the above reasons, the Board should conclude that the Examiner has failed to establish a prima facie case of obviousness against the subject matter of claims 14-29 and 31-40 of the above-captioned application.

F. Claims 37 and 38

The Examiner contends, in a vague manner, that the Kawakami Publication anticipates the subject matter of claims 37 and 38 (Office Action, dated July 17, 2009, at 2, lines 12-14 ; and at 5, lines 11-15), which each recite that "the contact member is disposed on a side of the cell." When an Examiner contends there is an explicit or implicit teaching or suggestion in the art, the Examiner must indicate where such a teaching or suggestion appears in the reference. In re Rijckaert, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993). **The Examiner**

has not met this prima facie burden in this case with respect to the subject matter of claims 37 and 38.

Claims 37 and 38 depend upon claims 14 and 21, respectively. Independent claims 14 and 21 include "a front face of the cell" and "a back face of the cell" that are formed by the "at least one transparent front substrate" and the "at least one transparent front substrate," respectively. Therefore, the embodiments of claims 37 and 38 each include a cell having a front face, a back face and a side. Figure 7 of Applicants' original disclosure illustrates, for example, a "contact member" (42) disposed "on a side of the cell." As evident from all of the illustrated embodiments of the invention (i.e., Figures 5, 6, 7, 9, 10, 11 and 12), the "side" of the cell is different from the "front face" and the "back face" of the cell.

Furthermore, as shown in Figures 5, 6, 7, 9, 10 and 12 of Applicants' disclosure, the "lateral electric contact zones" are all located on lateral sides of the cell. Therefore, in accordance with Applicants' original disclosure, the Board should conclude that a "side" is different from a "front face" and a "back face," and that the "lateral electric contact zones" are associated with the side of the cell and not the faces of the cell.

Figure 2 of the Kawakami Publication clearly shows the ACF (34) disposed on a face of the cell, and not on the side of the cell. Therefore, the Board should conclude that the Kawakami Publication does not teach, or suggest, "the contact member is disposed on a side of the cell" as recited by claims 37 and 38. Therefore, the Board should concude that the Kawakami Publication does not anticipate the subject matter of claims 37 and 38 of the above-captioned application.

The Board should further conclude that neither the Mandai Publication, the Kuroki Publication, nor the Wada Publication, either alone or in combination with the Kawakami Publication, make up this deficincy in the disclosure of the Kawakami Publication. Thus, the Board should conclude that the disclosures of the Kawakami Publication, the Mandai

Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, fail to establish either a prima facie case of anticipation or a prima facie case of obviousenss against claims 37 and 38.

3. A Prima Facie Case of Obviousness Under 35 U.S.C. § 103 Has Not Been Established Because a Person of Ordinary Skill in the Art Would Not Have Had a Reasonable Expectation of Obtaining the Claimed Invention Even if the Combination of Disclosures Suggested by the Examiner was Made.

A proper rejection under Section 103 requires showing (1) that a person of ordinary skill in the art would have had a legitimate reason to attempt to make the composition or device, or to carry out the claimed process, and (2) that the person of ordinary skill in the art would have had a reasonable expectation of success in doing so. PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1360 (Fed. Cir. 2007). In this case, the Board should conclude that the combined disclosures of the Kawakami Publication, the Mandai Publication, the Kuroki Publication, and the Wada Publication fall substantially short of the claimed invention for the reasons discussed above so that a person of ordinary skill in the art would not have had a reasonable expectation of success of obtaining the invention recited by claims 14-29 and 31-40 even if the combination of disclosures asserted by the Examiner was made.

For all of the above reasons, the Board should conclude that the Examiner has failed to establish a prima facie case of obviousness against claims 14-29 and 31-40 based on the combined disclosures of the Kawakami Publication, the Mandai Publication, the Kuroki Publication, and the Wada Publication.

Conclusion

The Board should conclude that the Examiner has failed to establish either a prima facie case of anticipation, or of obviousness, against claims 14-29, 31 and 33-40 of the above-captioned application because the disclosures of the Kawakami Publication, the Mandai Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, fail to teach, or even suggest, each and every limitation of claims 14-29, 31 and 33-40 arranged as in the claims. Therefore, the Board should vacate all of the outstanding rejections asserted by the Examiner against claims 14-29, 31 and 33-40 of the above-captioned application.

For all of the above reasons, claims 14-29, 31 and 33-40 are in condition for allowance and a prompt notice of allowance is earnestly solicited. Furthermore, while claim 32 pertains to subject matter of a non-elected species, claim 32 depends upon claim 14 and should be rejoined with generic claim 14.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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CLAIMS APPENDIX (A)

Claims 1-13 have been cancelled.

14. An electro-optical display cell comprising:

(a) at least one transparent front substrate whose top surface forms a front face of the cell;

(b) at least one back substrate that may also be transparent or not, whose lower surface forms a back face of said cell;

(c) a sealing frame joining the front and back substrates and defining a volume for retaining an electro-optically or photo-electrically active medium in a sealed manner, wherein

said front and back substrates include on faces opposite each other at least one electrode each, these electrodes being connectable by conductive paths of the cell to an electrical power or control circuit and the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones,

wherein the conductive paths are each formed of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over the back surface of the cell; and

(d) a contact member arranged over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first separate component part and the second separate component part of each conductive path, wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part, and the first separate component part and the second separate component part are disposed so that each contacts the contact member.

15. The cell according to claim 14, wherein the contact member takes the form of discrete conductive bumps.

16. The cell according to claim 15, wherein the first separate component part of each conductive path comes into lateral contact with the conductive bumps, whereas the second separate component part of each conductive path can extend as far as the top of said bumps and cover said bumps in whole or in part.

17. The cell according to claim 15, wherein the second separate component part of each conductive path extends at least partially underneath the conductive bumps.

18. The cell according to claim 14, wherein the contact member takes the form of a tape of anisotropic conductive material.

19. The cell according to claim 14, wherein the cell includes a stack of (n) individual cells, each of the individual cells being defined by two substrates belonging thereto.

20. The cell according to claim 14, wherein the cell includes (n+1) superposed substrates, these (n+1) substrates being joined in pairs by a sealing frame.

21. A multi-layered liquid crystal display cell including:

four superposed substrates joined in pairs by sealing frames which each define a sealed cavity for retaining liquid crystals;

a first sealing frame joining the substrates, while a second sealing frame joins the substrates and a third sealing frame joins the substrates, said substrates including on faces opposite each other at least one electrode each, said electrodes being connectable by conductive paths to an electric control circuit and the electrodes are even or level with an edge surface of the front substrate and with an edge surface of the back substrate, respectively, and define lateral electric contact zones,

wherein the conductive paths are each made up of a first separate component part in contact with the electrodes at the level of the lateral electric contact zones, and a second separate component part extending over a back surface of the cell; and

a contact member arranged on an edge, or on back, or on the edge and on the back, of said cell thereby forming an electric junction disposed between the first separate component part and the second separate component part of each conductive path, wherein the electric junction provides direct conductive continuity between the first separate component part and the second separate component part, and the first separate component part and the second separate component part are disposed so that each contacts the contact member.

22. The cell according to claim 14, wherein a power circuit or the control circuit is mounted on the back of the cell.

23. The cell according to claim 21, wherein a power circuit or the control circuit is mounted on the back of the cell.

24. The cell according to claim 22, wherein the circuit is mounted directly on the back of the cell.

25. The cell according to claim 23, wherein the circuit is mounted directly on the back of the cell.

26. The cell according to claim 22, wherein the circuit is mounted on the back of the cell via a printed circuit board or a flexible conductive film.

27. The cell according to claim 23, wherein the circuit is mounted on the back of the cell via a printed circuit board or a flexible conductive film

28. The cell according to claim 14, wherein a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell.

29. The cell according to claim 21, wherein a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell.

30. (Withdrawn)

31. The cell according to claim 14, wherein the cell is a liquid crystal cell.

32. (Withdrawn)

33. The cell according to claim 14, wherein the contact member is disposed on an exterior surface of the cell.

34. The cell according to claim 21, wherein the contact member is disposed on an exterior surface of the cell.

35. The cell according to claim 14, wherein the back substrate is disposed between the contact member and the front substrate of the cell.

36. The cell according to claim 21, wherein the back substrate is disposed between the contact member and the front substrate of the cell.

37. The cell according to claim 14, wherein the contact member is disposed on a side of the cell.

38. The cell according to claim 21, wherein the contact member is disposed on a side of the cell.

39. The cell according to claim 14, wherein the contact member has a first thickness and the first separate component part has a second thickness and the second separate component part has a third thickness, wherein the first thickness is thicker than the second thickness and the first thickness is thicker than the third thickness.

40. The cell according to claim 21, wherein the contact member has a first thickness and the first separate component part has a second thickness and the second separate component part has a third thickness, wherein the first thickness is thicker than the second thickness and the first thickness is thicker than the third thickness.

EVIDENCE APPENDIX (B)

1. RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 513 and 985 (1991), a copy of which was filed with Amendment (F) on April 6, 2009. The Examiner implicitly entered and considered this evidence in the Office Action of July 17, 2009, at 2, lines 2-4.

2. RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 845, 985 and 1386 (1991), a copy of which was filed with Amendment (G) on April 30, 2009. The Examiner implicitly entered and considered this evidence in the Office Action of July 17, 2009, at 2, lines 2-4.

RELATED PROCEEDINGS APPENDIX (C)

There are no related proceedings.